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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,141	09/01/2005	Shigehiro Nishino	122261	9522
25944	7590	06/11/2007	EXAMINER	
OLIFF & BERRIDGE, PLC			SONG, MATTHEW J	
P.O. BOX 19928				
ALEXANDRIA, VA 22320			ART UNIT	PAPER NUMBER
			1722	
			MAIL DATE	DELIVERY MODE
			06/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/520,141	NISHINO ET AL.
	Examiner Matthew J. Song	Art Unit 1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 15 May 2007.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/3/05; 5/15/07</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 6/30/2003. It is noted, however, that applicant has not filed a certified copy of the PCT/JP03/08312 application as required by 35 U.S.C. 119(b).

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 recites, "polycrystal SiC has high reflectivity with respect to laser light" in line 2. It is unclear what is "high". In other words, what is high and what is low is not defined.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanino et al (US 6,203,772).

Tanino et al discloses an  $\alpha$ -SiC substrate 1 and growing a polycrystalline  $\beta$ -SiC 2 so as to form an end portion 2e over the whole periphery of the side face of the single crystal  $\alpha$ -SiC substrate 1 (col 3, ln 25-55 and Fig 1), this reads on applicant's polycrystalline SiC around an outer circumference of a small diameter single crystal  $\alpha$ -SiC wafer. Tanino et al also teaches ground or polished to improve smoothness (col 3, ln 40-50 and col 4, ln 5-15).

Referring to claim 2, claim 2 requires at least two or more wafers are placed. The patentability determination of a product-by-process claim is based on the patentability of the product and does not depend on its method of production (MPEP 2113). Placing a plurality of wafers is a process limitation and does not change the structure of the product. Furthermore, Tanino et al discloses two substrates (Fig 3).

Referring to claim 3, The patentability determination of a product-by-process claim is based on the patentability of the product and does not depend on its method of production (MPEP 2113). Tanino et al discloses polycrystalline  $\beta$ -SiC. Furthermore, Tanino et al discloses growth by thermochemical deposition (col 2, ln 35-50). It is also noted that forming b-SiC by CVD is known in the art, as evidenced by Tanino (US 6,153,165) in column 3, lines 1-10.

Referring to claim 4, Tanino et al teaches mirror polishing (col 4, ln 5-20), this reads on applicant's high reflectivity to laser light.

Referring to claim 5, Tanino et al discloses growing polycrystalline SiC on the side of a substrate then the substrate is ground to produce a wafer with an  $\alpha$ -SiC single substrate and polycrystalline portion (col 3, ln 25-65 and Fig 2).

6. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanino (US 6,153,165).

Tanino (US 6,153,165) teaches growing polycrystalline  $\beta$ -SiC 2 on an  $\alpha$ -SiC single crystal 1 by thermal CVD (col 3, ln 1-35). Tanino also teaches growth of the polycrystalline  $\beta$ -SiC 2 on the side of the  $\alpha$ -SiC single crystal (Fig 1), this reads on applicant's polycrystalline SiC around an outer circumference of a small diameter single crystal  $\alpha$ -SiC wafer.

Referring to claim 2, claim 2 requires at least two or more wafers are placed. The patentability determination of a product-by-process claim is based on the patentability of the product and does not depend on its method of production (MPEP 2113). Placing a plurality of wafers is a process limitation and does not change the structure of the product.

Referring to claim 3, The patentability determination of a product-by-process claim is based on the patentability of the product and does not depend on its method of production (MPEP 2113). Tanino et al discloses polycrystalline  $\beta$ -SiC. Furthermore, Tanino et al discloses growth by thermal CVD

Referring to claim 4, Tanino et al teaches a high quality SiC, thus it inherently has a high reflectivity because a "high reflectivity" is indefinite and the Examiner has interpreted a SiC with any reflectivity as having high reflectivity, thus the high quality SiC taught by Tanino meets the claimed limitation.

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanino (US 6,153,165) as applied to claims 1-4 above, and further in view of Tanino et al (US 6,203,772).

Tanino ('165) teaches all of the limitations of claim 5, as discussed previously, except grinding the polycrystal SiC.

Tanino et al ('772) teaches the substrate having a polycrystalline  $\beta$ -SiC 2 formed on an end portion 2e over the whole periphery of the side face of the single crystal  $\alpha$ -SiC substrate is ground or mirror polished to improve smoothness (col 3, ln 40-50 and col 4, ln 5-15).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Tanino ('165) by grinding the substrate, as taught by Tanino et al ('772) to grind the substrate to improve smoothness.

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***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Song whose telephone number is 571-272-1468. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew J Song  
Examiner  
Art Unit 1722

ROBERT KUNEMUND  
PRIMARY PATENT EXAMINER  
A.U. 1722

MJS  
6/5/2007